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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,660	02/06/2004	Sai Yiu Ho	030351	7521
23696 7590 01/06/2009 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER				
CHO, UN C				
ART UNIT		PAPER NUMBER		
2617				
NOTIFICATION DATE		DELIVERY MODE		
01/06/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/773,660

**Applicant(s)**

HO ET AL.

**Examiner**

Un Cho

**Art Unit**

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20, 35-50, 52-56 and 58-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20, 35-50, 52-56 and 58-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3 – 8, 10, 12, 19, 35 – 39, 41, 45, 52, 58 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan (US 6,597,913 B2) in view of Kim et al. (US 2002/0137521 A1) and in view of Padgett et al. (US 2002/0183039 A1).

Regarding claim 1, Regarding claim 1, Natarajan discloses a transceiver subsystem (Col. 2, lines 40 – 52; wherein the BS provides RF coverage, thus, it would have been obvious to one of ordinary skill in the art to know that the BS has a transceiver subsystem); and a processing subsystem (Col. 4, lines 50 – 55; wherein the BS determines whether to grant channel requests, thus, it would have been obvious to one of ordinary skill in the art to know that the BS has a processing subsystem) configured to receive a request for grant from a mobile station and to make a determination whether or not to issue a grant to the mobile station in response to the request for grant (Col. 4, lines 50 – 55).

However, Natarajan does not specifically disclose to receive a request for grant including an identification of a specific service class from a mobile station, the specific service class being one of a set of available service classes, each service class corresponding to a particular type of data, to send a grant for the

specific service class to the mobile station if a determination is made to issue the grant, and to receive data for the specific service class transmitted according to the grant on a reverse link from the mobile station to the base station. In an analogous art, Kim remedies the deficiencies of Natarajan by disclosing such limitation wherein a mobile station requests specific service class, the specific service class being one of a set of available service classes (DRQ), once the request is granted the mobile station transmits to the base station at the specific service class (see Table 1 on Page 3 and Paragraph 0038, lines 1 – 10; Page 4, Paragraph 0044 through Paragraph 0047, specifically Paragraph 0045, lines 1 – 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the technique of Kim to the system of Natarajan in order to provide a method for scheduling data transmitted in a system capable of guaranteeing different QoS levels for respective service data.

However, the combination of Natarajan and Kim does not specifically disclose that each service class corresponding to a particular type of data. In an analogous art, Padgett remedies the deficiencies of the combination of Natarajan and Kim by disclosing such limitation on Page 2, Paragraph 0018 through 0021, specifically Paragraph 0020; the ALCM system at the base station receives an HSD service request and the request is granted based on *service class* of the request and the *rate*, therefore, one of ordinary skill in the art would have recognized that service class corresponds to a particular type of data and the system would grant the data rate based on the type of data identified by the

service class. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the technique of Padgett to the modified system of Natarajan and Kim in order to provide an efficient wireless network system that performs cost analysis and grants access to mobile devices based on the admission criteria.

Regarding claim 3, Natarajan discloses all the elements including wherein the processing subsystem is configured to make the determination independently of one or more additional base stations (Col. 4, lines 50 – 66, wherein the BS is the only BS that can service the channel request).

Regarding claims 4 and 45 Natarajan teaches all the elements/steps except wherein (the determination is made) (claim 4), (determining whether to issue the service grant is performed) (claim 45), at the medium access control layer. In an analogous art, Padgett remedies the deficiencies of Natarajan in view of Kim by disclosing an adaptive load and coverage management (ALCM) system located at the BS, which includes a load management module, which further includes a MAC layer entity that monitors the determination of the channel grants (Padgett: Paragraphs 18 and 25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the BS of Natarajan in view of Kim would determine whether to grant the channel request at the MAC layer because as taught by Padgett, the determination of the channel grants in the base station occurs at the MAC layer. See *Id.*

Regarding claim 5, Natarajan discloses all the elements including wherein if the processing subsystem determines that the grant should be issued to the mobile station, the base station is configured to issue the grant (Col. 4, lines 50 – 65).

Regarding claim 6, Natarajan discloses all the elements including wherein the processing subsystem is configured to identify the mobile station in the grant (Col. 14, lines 50 – 65, wherein it would have been obvious to one of ordinary skill in the art to know that the mobile station would be identified in the grant so that the mobile station knew which channel(s) it had been allocated).

Regarding claim 7, Kim discloses wherein the processing subsystem is configured to issue the grant as an individual grant (Page 4, Paragraph 0045, lines 1 – 20; the request is granted based on the request from a mobile station).

Regarding claim 8, Kim discloses wherein the processing subsystem is configured to identify the mobile station in the individual grant (Page 3, Table 1; Paragraph 0038, lines 1 – 10 and Page 4, Paragraph 0045, lines 1 – 20; BS receives a request from the mobile station, thus, it would have been obvious to one of ordinary skill in the art to understand that the request is always associated with the mobile station's identification).

Regarding claim 10, Padgett discloses wherein the processing subsystem is configured to identify in the common grant the specific service class for which the common grant is issued (Page 2; Paragraph 0018; embedded in the mobile request may be information about the service class and that in the

granted request, the base station indicates the service class for which the grant is granted).

Regarding claim 12, the claim is interpreted and rejected for the same reason as set forth in claim 1.

Regarding claim 19, Natarajan in view of Kim and further in view of Padgett as applied above teaches all the elements of dependent claim 19, including the mobile station is configured to generate one or more additional requests for service for transmission to the base station if no grant is received in response to a previous request (Natarajan: Col. 4, lines 50 – 65, it would have been obvious to one of ordinary skill in the art at the time the invention was made to know that the mobile station would generate additional requests if no grant was received as the need for the channel has not changed).

Regarding claim 35, the claim is interpreted and rejected for the same reason as set forth in claim 1.

Regarding claim 36, the claim is interpreted and rejected for the same reason as set forth in claim 5.

Regarding claim 37, the claim is interpreted and rejected for the same reason as set forth in claim 7.

Regarding claim 38, the claim is interpreted and rejected for the same reason as set forth in claim 6.

Regarding claim 39, the claim is interpreted and rejected for the same reason as set forth in claim 8.

Regarding claim 41, the claim is interpreted and rejected for the same reason as set forth in claim 39.

Regarding claim 52, the claim is interpreted and rejected for the same reason as set forth in claim 12.

Regarding claim 58, the claim is interpreted and rejected for the same reason as set forth in claim 1.

Regarding claim 62, the claim is interpreted and rejected for the same reason as set forth in claim 58.

3. Claims 2, 9, 11, 13 – 15, 17, 18, 20, 40, 42 – 44, 46 – 50, 53 – 56 and 59 – 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan in view of Kim and in view of Padgett as applied to claim 1 above, and further in view of Vrzic et al. (US 2004/0228349 A1).

Regarding claims 2 and 43, the combination of Natarajan, Kim and Padgett teaches all the elements/steps except, wherein the processing subsystem is configured to make the determination independently of a base station controller (claim 2), further comprising a base station controller, wherein determining whether to issue the service grant is performed without communicating with one or more additional base stations (claim 43). In an analogous art, Vrzic remedies the deficiencies of the combination of Natarajan, Kim and Padgett by disclosing a method and system including both a BSC and BTSs, in which the BTSs process and allocate the mobile channel grant requests



(Paragraphs 0039 through 0041 wherein non-soft handoff mobile stations are scheduled by BTSs not BSCs). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to understand that such a system could include BSCs as taught by Vrzic, but that the BTSs would be used instead because the time to schedule the mobile channel grant requests is shorter than when using the BSCs (Vrzic: Paragraph 0010).

Regarding claims 9, 11, 40 and 42, Vrzic discloses in Paragraph 0012, that the BTS may send dedicated or common commands (grants) to individual mobiles or to groups of mobiles. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the grants taught in Natarajan could be dedicated or common and could be sent to individual, some, or all of the mobiles in a given sector and that dedicated and common grants could be sent together, all depending on the various mobile requests and the data rates available to the BTS. Id.

Regarding claims 13 – 15, the combination of Natarajan, Kim and Padgett does not specifically teach the mobile station having one or more buffers, wherein each buffer is associated with one of the classes of service, the processing subsystem is configured to monitor the buffers, and for each buffer, to generate a transmission request if a threshold amount of data is detected in the buffer, and further wherein the request specifies the class of service associated with the buffer and the amount of data in the buffer. In an analogous art, Vrzic teaches that it is known in the art to use information regarding the buffer

occupancy of the mobile station in determining and scheduling a channel grant (see paragraph 0006). In addition, in paragraph 0039, Vrzic teaches that the mobile station will transmit through either a grant or autonomously until its buffer is empty. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the mobile station of Natarajan, Kim and Padgett would include buffers as taught by Vrzic because these buffers contain the data to be transmitted and are thus used in determining and scheduling channel grants. See Vrzic, paragraph 0006. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the buffers would be monitored and if a threshold amount of data was detected a request would be generated including the class of service and amount of data because as taught by Vrzic, the mobile station's goal is to transmit all the data in a given buffer (see paragraph 0039) at the highest rate possible (see paragraph 0007).

Regarding claim 17, Vrzic discloses wherein the processing subsystem is configured to identify a maximum supportable T/P ratio in the request (Paragraph 0073).

Regarding claim 18, Vrzic discloses wherein the processing subsystem is configured to generate feedback while transmitting under a grant, wherein the feedback indicates changes in the maximum supportable T/P ratio (Paragraph 0073 and Paragraph 0107 to Paragraph 0108).

Regarding claim 20, Vrzic teaches that a mobile station can transmit at a data rate up to an assigned maximum data rate autonomously without waiting for a scheduling grant (See, paragraph 0039). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the mobile station in Natarajan, Kim and Padgett would send data autonomously at a specific lower data rate until a grant was received because while a grant would allow the mobile station to transmit at a higher data rate, without a grant, the mobile station could still transmit data, just at a lower data rate. See Vrzic, paragraph 0039.

Regarding claim 44, Natarajan discloses determining whether to issue the service grant is performed without communicating with one or more additional base stations (Col. 4, lines 50 – 66, wherein the BS is the only BS that can service the channel request).

Regarding claim 46, the combination of Natarajan, Kim, Padgett and Vrzic discloses all the steps including transmitting a request for a grant from a mobile station to the base station (Natarajan: Col. 4, lines 50 – 65). Padgett teaches that embedded in the mobile request may be information about the service classes requested and that in the granted request, the base station indicates the service class for which the grant is granted (Padgett: Paragraph 18). Also, Vrzic teaches that a mobile station can transmit at a data rate up to an assigned maximum data rate autonomously without waiting for a scheduling grant (Vrzic: Paragraph 39). Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made, to modify Natarajan, Kim and Padgett to include classes of service in the mobile channel request as taught by Padgett because it supplies specific information to the BS to help in determining whether and at what rate to grant the channel request. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the mobile station in the combination of Natarajan, Kim and Padgett would send data autonomously at a specific lower data rate until a grant was received because while a grant would allow the mobile station to transmit at a higher data rate, without a grant, the mobile station could still transmit data, just at a lower data rate. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to understand that in view of Natarajan that the mobile station would generate additional requests if no grant was received as the need for the channel grant would not have changed.

Regarding claims 47, 48, 53 and 54, the combination of Natarajan, Kim, Padgett and Vrzic teach all the steps including a mobile station having one or more buffers, wherein each buffer is associated with one of the classes of service, the processing subsystem is configured to monitor the buffers, and for each buffer, to generate a transmission request if a threshold amount of data is detected in the buffer, and further wherein the request specifies the class of service associated with the buffer and the amount of data in the buffer. Specifically, as indicated in the above rejections, Vrzic teaches that it is known in the art to use information regarding the buffer occupancy of the mobile station in

determining and scheduling a channel grant. See paragraph 0006. In addition, in paragraph 0039, Vrzic teaches that the mobile station will transmit through either a grant or autonomously until its buffer is empty.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the mobile station of Natarajan, Kim and Padgett would include buffers as taught by Vrzic because these buffers contain the data to be transmitted and are thus used by the mobile station in determining the requests for channel grants. See Vrzic, paragraph 6. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the buffers would be monitored and if a threshold amount of data was detected a request would be generated including the class of service and amount of data because as taught by Vrzic, the mobile station's goal is to transmit all the data in a given buffer (see paragraph 0039) at the highest rate possible (see paragraph 0007).

Regarding claims 49 and 55, Vrzic discloses wherein the processing subsystem is configured to identify a maximum supportable T/P ratio in the request (Paragraph 0073).

Regarding claim 50 and 56, Vrzic discloses wherein the processing subsystem is configured to generate feedback while transmitting under a grant, wherein the feedback indicates changes in the maximum supportable T/P ratio (Paragraph 0073 and Paragraph 0107 to Paragraph 0108).

Regarding claim 59, the claim is interpreted and rejected for the same reason as set forth in claim 47.

Regarding claim 60, the claim is interpreted and rejected for the same reason as set forth in claim 48.

Regarding claim 61, the claim is interpreted and rejected for the same reason as set forth in claim 49.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1 – 20, 35 – 50, 52 – 57 and 58 – 62 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Un Cho whose telephone number is (571)272-7919. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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